CLAIMS:

1.   A method for braking a synchronous machine, with the armature windings of the synchronous machine being short-circuited, optionally by interposing at least one braking resistor, characterized in that the short-circuit current is regulated by a pulse-width modulation depending on the difference between the setpoint value of the short-circuit current corresponding to the setpoint value of the braking moment and the actual value of the short-circuit current.

2.   A synchronous machine for performing the method according to claim 1, comprising a rotor and a shortable armature winding which is connected to a power converter comprising a half bridge each for positive and negative half-waves of the current, which half bridge can be switched via a power breaker, characterized in that the power breakers (12, 13) of at least one half-bridge (15, 16) of the power converter (3), which power breakers short the armature windings (u, v, w), can be triggered by way of a closed-loop control device (11) depending on the difference between the setpoint value of the short-circuit current corresponding to the setpoint value of the braking moment and the actual value of the short-circuit current.

3.   A synchronous machine according to claim 2, characterized in that the power breakers (12, 13) of two half-bridges (15, 16) of the power converter (3), which power breakers short the armature windings (u, v, w), can be triggered in an alternating fashion by way of a closed-loop control device (11) depending on the difference between the setpoint value of the short-circuit current corresponding to the setpoint value of the braking moment and the actual value of the short-circuit current.

4.   A synchronous machine for performing the method according to claim 1, comprising a rotor and an armature winding which may optionally be shorted by way of a braking resistor, characterized in that the armature windings (u, v, w) are

connected to a rectifier circuit (26) which can be shorted by way of a power breaker (17), and that the power breaker (17) can be triggered via a closed-loop control device (11) depending on the difference between the setpoint value of the short-circuit current corresponding to the setpoint value of the braking moment and the actual value of the short-circuit current.